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HAIR CURLING IRON WITH CONCAVE/CONVEX HEATING SURFACES

RELATED APPLICATION

This is a non-provisional application based on U.S. Serial No. 60/395,910 filed July 15, 2002 and entitled: Hair Curling Iron With Concave/Convex Heating Surfaces.

BACKGROUND OF THE INVENTION

The present application relates generally to hair styling appliances, and particularly to curling irons.

Conventional curling irons used by consumers and professional stylists employ an unheated clamp against a heated barrel. Hair caught by the clamp and pressed against the barrel is styled as desired by the user or stylist. Often a rotating or twisting motion is used to obtain the desired look.

In some cases, it has been difficult, using conventional curling irons, to obtain gentle flips or waves at the hair ends using conventional curling irons. In other cases, it has been difficult to both straighten and provide gradual flips or waves with the same iron.

Thus, there is a need for a curling iron which can achieve gradual flips or curves at the hair ends, and which can also straighten hair where needed. Furthermore, there is a need for a curling iron which can create a ribbon-like hair look.

BRIEF SUMMARY OF THE INVENTION

The above-identified needs are met or exceeded by the present curling iron, which features a pair of clamping arms or jaws, each of which is heated. In addition, corresponding opposed surfaces of the jaws are configured to form nesting convex/concave surfaces, with one surface having a convex shape and being received in the concave shape of the other surface.

Another feature of the present curling iron is that both of the opposed surfaces are free of obstructions such as teeth, ridges, ribs or bristles. As such, the surfaces are smooth for promoting a clamping/ironing action on the hair strands. The present curling iron is designed to straighten hair and, when rotated slightly at the end of the stroking movement through the hair, to provide a slight flip to the hair ends. When a group of hair strands are clamped between the jaws, and the iron is rotated during the stroking movement, a ribbon-like appearance is created to the clamped hair strands.

More specifically, a curling iron is provided including a first leg with a bottom surface and a second leg with a top surface, the bottom and top surfaces being in opposed relationship to each other and having a nested

convex/concave shape. In the preferred embodiment, both of the legs are heated. Also, in one embodiment, the first leg is biased against a second leg, and a release lever is provided for selectively overcoming the biasing force and separating said legs. In another embodiment, the first leg is pivotable relative to the second leg, and a clamp lever is provided for controlling the pivoting action.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

FIG. 1 is a perspective view of a first embodiment of the present curling iron shown attached to a line cord;

FIG. 2 is an enlarged fragmentary perspective view of the curling iron of FIG. 1;

FIG. 3 is a cross-section taken along the line 3-3 of FIG. 2 and in the direction indicated generally;

FIG. 4 is a perspective view of an alternate embodiment of the present curling iron; and

FIG. 5 is an alternate embodiment of the curling iron shown in FIG. 3.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIGs. 1 and 2, a hair styling device, generally designated 10, is shown in a closed position and includes an elongated, generally tubular first leg 12 and an elongated generally tubular second leg 14. The first leg

12 has a top surface 16, a bottom surface 18, a styling end 20 and a handle end 22 opposite the styling end. The second leg 14 has a top surface 24, a bottom surface 26, a styling end 28 and a handle end 30 opposite the styling end. Both of the handle ends are attached to a handle 32. As is common in the art, the first leg 12 is pivotally secured to the handle 30 to pivot about a transverse pivot point 34. The second leg 14 is fixed to project relatively axially from the handle 32 as is known in the art.

It is preferred that, in the curling iron 10, the first leg 12 is biased, as by a spring 35 (FIG. 1) against the second leg 14 to apply a clamping force upon hair strands caught between the opposing, corresponding bottom and top surfaces 18, 24. To open the legs 12, 14, a release lever 36 is provided to the first leg 12. A downward force on the release lever 36 overcomes a biasing force exerted to force the first leg 12 against the second leg 14, and raises the first leg relative to the second leg.

In the closed position, seen in FIGs. 1 and 2, the corresponding top and bottom surfaces 16, 26 form a generally cylindrical shape, and the corresponding styling ends 20, 28 form a generally cylindrical shape of reduced diameter compared to the surfaces 16, 26. Preferably, the styling ends 20, 28 are made of heat resistant material for gripping by the user. At a rear end 38 of the handle 32, a line cord 40 is provided, having a plug 42 and an optional on/off switch 44. It is also contemplated that the switch 44 could be located elsewhere, including on the handle 32 or adjacent to the rear end 38. It is contemplated that

the length of the line cord 40 is variable to suit the application (shown fragmented). Preferably, the cord 40 swivels on handle 32.

Referring now to FIGs. 2 and 3, an important feature of the legs 12, 14 is that the opposing corresponding bottom and top surfaces 18, 24 of the respective legs form a nested concave/convex relationship. In the preferred embodiment the surface 18 is concave and the surface 24 is convex, however the reverse is also contemplated. As seen in FIG. 3, each leg 12, 14 preferably has a generally "D"-shaped cross-section. Another feature of the legs 12, 14 is that the surfaces 16, 18, 24 and 26 are all smooth, and lack any bristle, rib, projection or other obstruction which might impede the movement of the legs 12, 14 through the hair. Still another preferred feature of the legs 12, 14 is that they are both heated with respective heating elements 46 located within respective interior chambers 48, 50. The location of the heating element 46 may vary to suit the application as is well known in the art of curling iron manufacture. However, it is also contemplated that only one of the legs 12, 14 is heated as in conventional curling irons, provided the nested concave/convex shape of the opposing surfaces 18, 24 is maintained. If desired, an optional support stand 52 may be provided (FIG. 2), which preferably pivots relative to the pivot point 34.

Referring now to FIG. 4, an alternate embodiment of the present curling iron is generally designated 60. Components which are shared with the iron 10 have been designated with identical reference numbers. The main difference between the irons 10 and 60 is that the iron 10 has a spring-biased first

leg 12 which is clamped tightly against the second leg 14 unless the release lever 36 is engaged, as by a user's thumb. In the case of the iron 60, also known in the art as a Marcel iron, a pivoting first leg 62 is not biased against a second leg 64, which any biasing force being provided by the user. To achieve this manipulation, the first leg 62 is connected to a clamp lever 66. Pulling the clamp lever 66 towards the handle 32 places the iron 60 in the closed position.

Referring now to FIG. 5, an alternate embodiment of the iron 10 is shown and designated 70 in which a first leg 72 is shown with an upper surface 74 and a lower surface 76, and a second leg 78 is shown with an upper surface 80 and a lower surface 82. The main difference between the irons 10, 70 is that the lower surface 76 of the first leg 72 is convex, and the upper surface 80 of the second leg 78 is concave. Thus, the nested concave/convex relationship of FIG. 3 has been reversed.

In operation, with the user placing a group of hair strands between the opposing surfaces 18, 24 and in the case of the iron 10 pressing slightly on the release lever 36, and in the case of the iron 60 gripping slightly on the clamp lever 66, the iron 10, 60 can grasp the trapped hair strands yet slide freely in a stroking manner from the scalp to the hair tips. Straightening is accomplished by allowing greater clamping force on the captured hair. Rotation of the iron 10, 60, as by cocking the user's wrist during the stroke, adds a flip to the hair. Tighter clamping while stroking results in a ribbon effect. The combination of concave/convex surfaces, dual heating and adjustable clamping force allow a user

to obtain a variety of hairstyles previously unavailable with conventional curling irons. If hair is wrapped around the iron 10, 60, the hair can be formed into an "O" shape.

While specific embodiments of the hair curling iron with concave/convex heating surfaces of the present invention have been shown and described, it will be appreciated by those skilled in the art that changes and modifications may be made thereto without departing from the invention in its broader aspects.